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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

		Application Number	10/594,640
		Filing Date	September 28, 2006
		First Named Inventor	Salem et al.
		Art Unit	to be assigned
		Examiner Name	to be assigned
Total Number of Pages in This Submission		Attorney Docket Number	6550-000087NPB

ENCLOSURES (check all that apply)

<input type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance Communication to Technology Center (TC)
<input type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment / Reply	<input type="checkbox"/> Petition	<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Terminal Disclaimer	<input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Request for Refund	Form 1449; copies of cited references (38 other documents); and postcard.
<input checked="" type="checkbox"/> Information Disclosure Statement	<input type="checkbox"/> CD, Number of CD(s) _____	
<input type="checkbox"/> Certified Copy of Priority Document(s)		
<input type="checkbox"/> Response to Missing Parts/ Incomplete Application		
<input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53		

Remarks

The Commissioner is hereby authorized to charge any additional fees that may be required under 37 CFR 1.16 or 1.17 to Deposit Account No. 08-0750. A duplicate copy of this sheet is enclosed.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Harness, Dickey & Pierce, P.L.C.	Attorney Name Monte L. Falcon	Reg. No. 37,617
Signature			
Date	February 7, 2007		

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

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This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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EV 757 778 905 US

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/594,640
Filing Date: September 28, 2006
Applicant: Salem et al.
Group Art Unit: to be assigned
Examiner: to be assigned
Title: Multi-User Detection in CDMA Systems
Attorney Docket: 6550-000087NPB

Director of the United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicant hereby submits an Information Disclosure Statement for consideration by the Examiner.

I. LIST OF PATENTS, PUBLICATIONS, AND OTHER INFORMATION

The patents, publications and other information requested to be considered by the Office (except unpublished U.S. patent applications) are listed on Form 1449 attached hereto.

II. COPIES

A. Submitted herewith is a legible copy of (i) each foreign patent; (ii) each publication or that portion which caused it to be listed, other than U.S. patents and U.S. patent application publications unless required by the Office; (iii) each unpublished U.S. application listed below in Section IV (i.e., including the specification, claims, and any drawing of the application, or that portion of the application which caused it to be listed, including any claims directed to that portion), except for such applications filed on or after June 30, 2003, pursuant to the Waiver of the Copy Requirement in 37 C.F.R. 1.98 (OG Notice dated October 19, 2004); and (iv) all other information or that portion which caused it to be listed.

B. Any patents, publications or other information which are listed on Form 1449 or on the copies of PTO-892, but which are not enclosed herewith, were previously cited by or submitted to the PTO in one of the following applications which has been relied upon for an earlier filing date under 35 U.S.C. § 120:

U.S. Serial Number

U.S. Filing Date

C. This is a PCT application in the entry of the National Phase in the United States. A copy of the International Search Report is attached for the Examiner's information. The documents listed on the International Search report are listed on the attached Form 1449 for consideration by the Examiner and for listing on any patent resulting from this application. If the International Search report was from the US, EPO, or JPO search authorities, copies of these references should have been supplied to the USPTO under the trilateral agreement and are believed to be in the file of the above-identified application. (MPEP 1893.03(g).)

III. CONCISE EXPLANATION OF THE RELEVANCE (check at least one box)

A. Except as may be indicated below in (B), all of the patents, publications or other information are in the English language (concise explanation not required).

B. A concise explanation of the relevance of each patent, publication or other information listed that is not in the English language is as follows (see 37 C.F.R. § 1.98(a)(3)):

1. See the attached foreign patent office communication from a counterpart foreign application:

2. English translations are provided:

3. Other:

C. The following additional information is provided for the Examiner's consideration.

In order to reduce the burden on the Examiner, Applicants submit herewith most relevant portions of references 28 and 31. If the Examiner wishes to review additional sections of these references, Applicants respectfully invite the Examiner to contact the undersigned.

IV. CROSS REFERENCE TO RELATED APPLICATION(S)

A. The Examiner is advised that the following co-pending application(s) contain(s) subject matter that may be related to the present application. By bringing this(these) application(s) to the Examiner's attention, Applicant(s) does (do) not waive the confidentiality provisions of 35 U.S.C. § 122.

Serial No. Filing Date Inventor(s)

V. THIS IDS IS BEING FILED UNDER

A. **37 C.F.R. § 1.97(b): (check only one box)**

1. within three months of the filing date of a national application other than a continued prosecution application under § 1.53(d) (37 C.F.R. § 1.97(b)(1)). No fee or certification is required.
2. within three months of the date of entry of the national stage as set forth in § 1.491 in an international application (37 C.F.R. § 1.97(b)(2)). No fee or certification is required.
3. before the mailing of a first Office Action on the merits (37 C.F.R. § 1.97(b)(3)). No fee or certification is required. In the event that a first Office Action on the merits has been issued, please consider this IDS under 37 C.F.R. § 1.97(c) and see the certification under 37 C.F.R. § 1.97(e) below; or, if no certification has been made, charge our deposit account a fee in the amount of \$180.00 as required by 37 C.F.R. § 1.17(p).
4. before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No fee or certification is required.

B. **37 C.F.R. § 1.97(c): (check only one box)**

before the mailing date of either any Final Office Action under 37 C.F.R. § 1.113, a Notice of Allowance under 37 C.F.R. § 1.311, or an action that otherwise closes prosecution.

1. No certification; therefore, a fee in the amount of \$180.00 is required by 37 C.F.R. § 1.17(p).
2. See the certification below. No fee is required.

C. **37 C.F.R. § 1.97(d):**

after the mailing date of either a Final Office Action under 37 C.F.R. § 1.113 or a Notice of Allowance under 37 C.F.R. § 1.311, yet on or before payment of the issue fee.

1. See the certification below. A fee in the amount of \$180.00 is required by 37 C.F.R. § 1.17(p).

VI. **CERTIFICATION UNDER 37 C.F.R. § 1.97(e): (check only one box)**

The undersigned hereby certifies that:

A. each item of information contained in this IDS was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS (See 37 C.F.R. § 1.97(e)(1)). See further statement under 37 C.F.R. 1.704(d) below in section VII, if applicable; or

B. no item of information contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in this IDS was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this IDS (See 37 C.F.R. § 1.97(e)(2)).

C. some of the items of information were first cited in a communication from a foreign patent office. As to this information, the undersigned hereby certifies that each item of information contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS. As to the remaining information, the undersigned hereby certifies that no item of this remaining information contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in this IDS was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this IDS.

VII. **STATEMENT UNDER 37 C.F.R. 1.704(d)**

The undersigned hereby states that:

each item of information contained in this IDS was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this IDS.

VIII. PAYMENT OF FEES (check only one box, if applicable)

A. A check in the amount of \$180.00 is enclosed for the above-identified fee.

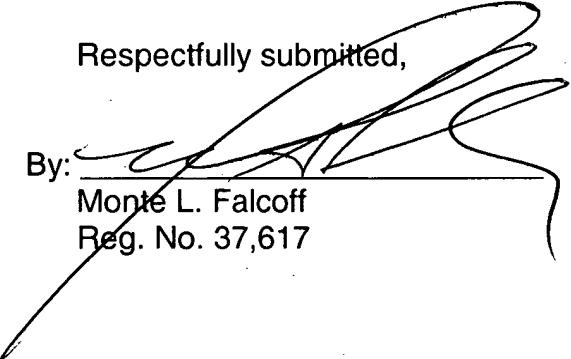
B. Please charge Deposit Account No. 08-0750 in the amount of \$180.00 for the above-identified fee. A duplicate copy of this paper is attached.

Please charge any additional fees or credit any overpayment pursuant to 37 C.F.R. § 1.16 or § 1.17 to Deposit Account No. 08-0750.

The above references are being cited only in the interest of candor and without any admission that they constitute statutory prior art, contain matter which anticipates the invention, or which would render the same obvious, either singly or in combination, to a person of ordinary skill in the art. Furthermore, this Information Disclosure Statement shall not be construed as a representation that a search has been made.

If it is determined that this IDS has been filed under the wrong rule, the PTO is requested to consider this IDS under the proper rule (with a petition if necessary) and charge the appropriate fee to Deposit Account No. 08-0750.

Respectfully submitted,

By: 
Monte L. Falcoff
Reg. No. 37,617

Dated: February 7, 2007

Harness, Dickey & Pierce, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

MLF/JSB/kp



PTO-1449 (Based on Form PTO-1449)

**PATENT AND TRADEMARK OFFICE
INFORMATION DISCLOSURE CITATION**
(Use several sheets if necessary)

Sheet 1 of 5

ATTORNEY DOCKET No.	SERIAL No.
6550-000087/NPB	10/594,640
APPLICANT	
Salem et al.	
FILING DATE	GROUP
September 28, 2006	

U.S. PATENT DOCUMENTS

Ref. Desig.	Examiner's Initials	Document Number	Date	Name	Class/Subclass	(If appropriate) Filing Date
1.		6,768,515	07/27/2004	Erten et al.		
2.		6,735,482	05/11/2004	Erten et al.		
3.		6,691,073	02/10/2004	Erten et al.		
4.		6,625,587	09/23/2003	Erten et al.		
5.		2004/0223391	11/11/2004	Erten et al.		
6.		2004/0158543	08/12/2004	Salam et al.		
7.		2001/0030668	10/18/2001	Erten et al.		

FOREIGN PATENT DOCUMENTS

Ref. Desig.	Examiner's Initials	Document Number	Date	Country	Class/Subclass	Translation Yes	No
1.							

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)

Ref. Desig.	Examiner's Initials	
1.		K. Waheed and F. M. Salam: A Data-Derived Quadratic Independence Measure for Adaptive Blind Source Recovery in Practical Applications. 45th IEEE International Midwest Symposium on Circuits and Systems, Tulsa, Oklahoma, Vol. 3, pp. 473-476, 2002b.
2.		K. Waheed and F. M. Salam: Blind Source Recovery using an Adaptive Generalized Gaussian Score Function. 45th IEEE International Midwest Symposium on Circuits and Systems, Tulsa, Oklahoma, vol. 2, pp. 418-422, 2002a.
3.		K. Waheed and F. M. Salam: Cascaded Structures for Blind Source Recovery; 45th IEEE Int'l Midwest Symposium on Circuits and Systems, Tulsa, Oklahoma, vol. 3, pp. 656-659, 2002c.

Examiner:

Date Considered:

EXAMINER: Please initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM HDP-1449 (Based on Form PTO-1449)		ATTORNEY DOCKET NO.	SERIAL NO.
		6550-000087/NPB	10/594,640
		APPLICANT	
		Salem et al.	
		FILING DATE	GROUP
Sheet 2 of 5		September 28, 2006	

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)		
Ref. Desig.	Examiner's Initials	
4.		K. Waheed and F. M. Salam: State Space Blind Source Recovery of Non-Minimum Phase Environments. 45th IEEE International Midwest Symposium on Circuits and Systems, Tulsa, Oklahoma, vol. 2, pp. 422-425, 2002d.
5.		K. Waheed and F. M. Salam: State-Space Blind Source Recovery for Mixtures of Multiple Source Distributions. Proc. of IEEE International Symposium on Circuits and Systems, ISCAS-2002 Scottsdale, Arizona, pp. 197-200, 2002.
6.		F. M. Salam and K. Waheed: State-space Feedforward and Feedback Structures for Blind Source Recovery. Proc. 3rd International Conference on Independent Component Analysis and Blind Signal Separation, San Diego, California, Page(s) 248-253,2001.
7.		K. Waheed and F. M. Salam. Blind Source Recovery: Some Implementation and Performance Issues, Proceedings of the 44th IEEE Midwest Symposium on Circuits and Systems, Dayton, Ohio, vol. 2, pp. 694-697, 2001.
8.		F. M. Salam, G. Erten and K. Waheed. Blind Source Recovery: Algorithms for Static and Dynamic Environments. Proc. of INNS-IEEE International Joint Conference on Neural Networks, IJCNN, 2001, Vol. 2, Page(s) 902-907, 2001.
9.		G. Erten and F. M. Salam. Voice Extraction by on-line Signal Separation and Recovery. IEEE Transactions on Circuits and Systems II: Analog and Digital Signal Processing, Volume: 46, Issue: 7, July 1999 Page(s): 915-922, 1999.
10.		G. Erten and F.M. Salam: Voice Signal Extraction for Enhanced Speech Quality Noisy Vehicle Environments, Proceedings of Digital Avionics Systems Conference, 1999, Volume B.6-6, vol. 2, 1999, pp 8.C.3-1 - 8.C.3-6, vol. 2.
11.		F. M. Salam and G. Erten. Exact Entropy Series representation for Blind Source Separation. Systems, Man, and Cybernetics, Proceedings of 1999. IEEE SMC-99 Conference 1999, Volume: 1 pp. 553 - 558, 1999.
12.		F. M. Salam and G. Erten. The State Space Framework for Blind Dynamic Signal Extraction and Recovery. Proceedings of the 1999 IEEE International Symposium on Circuits and Systems, ISCAS- 99, Volume: 5, 1999, pp. 66-69 vol. 5, 1999a.
13.		G. Erten and F. M. Salam. Voice Output Extraction by Signal Separation, Proceedings of the 1998 IEEE International Symposium on Circuits and Systems, 1998, ISCAS 1998. Volume: 3, 1998, Vol. 3, pp. 5-8, 1998.

Examiner:	Date Considered:
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EXAMINER: Please initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM HDP-1449 (Based on Form PTO-1449)

PATENT AND TRADEMARK OFFICE
INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

Sheet 3 of 5

ATTORNEY DOCKET NO.	SERIAL NO.
6550-000087/NPB	10/594,640
APPLICANT	
Salem et al.	
FILING DATE	GROUP
September 28, 2006	

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)

Ref. Desig.	Examiner's Initials	
14.		F. M. Salam and G. Erten. Blind Signal Separation and Recovery in Dynamic Environments. Proceedings of 3rd IEEE Workshop on Nonlinear Signal and Image Processing, Mackinac Island, MI (Online proceedings available at http://www.ecn.purdue.edu/NSIP/), 1997.
15.		F. M. Salam, A. B. Gharbi, and G. Erten. Formulation and Algorithms for Blind Signal Recovery. Proceedings of the 40th Midwest Symposium on Circuits and Systems, MWSCAS-97, Volume: 2, Page(s): 1233-1236, 1997.
16.		G. Erten and F. M. Salam. Real Time Separation of Audio Signals using Digital Signal Processors; Proceedings of the 40th Midwest Symposium on Circuits and Systems, 1997, Volume: 2, pp. 1237 - 1240, 1998a.
17.		A. B. A. Gharbi and F. M. Salam. Algorithms for Blind Signal Separation and Recovery in Static and Dynamic Environments. Proceedings of 1997 International Symposium on Circuits and Systems (ISCAS-1997), June 9-12, Hong Kong, pp. 713-716, 1997.
18.		Ammar B. A. Gharbi and Fathi Salam: Implementation and Experimental Results of a Chip for the Separation of Mixed and Filtered Signals. Journal of Circuits, Systems and Computers, vol.6, no.2, pp.115-139, April 1996.
19.		Ammar B. A. Gharbi and Fathi Salam: Implementation and Test Results of a Chip for the Separation of Mixed Signals. IEEE transactions on Circuits and Systems, vol.42, no.11, pp.748-751, November 1995.
20.		A. B. A. Gharbi and F. M. Salam. Implementation and Test Results of a Chip for the Separation of Mixed Signals. IEEE Transactions on Circuits and Systems, vol. 42, no. 11, pp. 748-751, 1995.
21.		A. B. A. Gharbi and F. M. Salam. Separation of Mixed Signals in Dynamic Environments: Formulation and some Implementation. Proc. of 37th Midwest Symposium on Circuits and Systems. 1994: Lafayette, LA. p. 587-590, 1994.
22.		F. M. Salam. An Adaptive Network for Blind Separation of Independent Signals. Proc. of International Symposium on Circuits and Systems, ISCAS-93, Chicago, IL, USA pp. 431-434, 1993.
23.		A.B.A. Gharbi and F.M. Salam: Blind Separation of Independent Sources in Linear Dynamical Media, NOLTA '93, Hawaii.

Examiner:

Date Considered:

EXAMINER: Please initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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		6550-000087/NPB	10/594,640
		APPLICANT	
		Salem et al.	
		FILING DATE	GROUP
Sheet 4 of 5		September 28, 2006	

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)		
Ref. Desig.	Examiner's Initials	
24.		R. Cristescu, et al.; Blind Separation of Convolved Mixtures for CDMA Systems", in proc. of the European Signal Processing Conference, EUSIPCO2000, Sept. 2000, Tampere, Finland.
25.		R. Cristescu et al.: CDMA Delay Estimation using Fast ICA Algorithm" in proc. of the International Symposium on Personal, Indoor and Mobile Radio Communications, PIMRC'00, September 2000, London, UK.
26.		D. Gesbert, J. Sorelius, P. Stoica, A. Paulraj, "Blind Multi-User MMSE Detection of CDMA signals in ISI channels", IEEE Communications Letters, August 1999.
27.		K.H.A. Karkkainen, et al.: The Influence of Initial-Phases of a PN Code Set on the Performance of an Asynchronous DS-CDMA System", Wireless Personal Communications, Vol. 3, no. 3, pp 279-293, June 2000.
28.		J. G. Proakis, Digital Communications, Fourth Edition, McGraw Hill, (2001), pp 896-932.
29.		T. Ristaniemi et al., Advanced ICA-based Receivers for Block Fading DS-CDMA Channels", Signal Processing, vol. 82, no 3, 2002, pp. 417-431.
30.		P. Schulz-Rittich et al., Channel Estimation for DS-CDMA with Transmit Diversity over Frequency Selective Fading Channels" in IEEE Semiannual Vehicular Technology Conference Spring VTC2001, May 6-9, 2002, Rhodes, Greece.
31.		S. Verdu, Multiuser Detection, Cambridge University Press, (1998), pp 3-10, 18-66, 286-330.
32.		S. Verdu: Minimum Probability of Error for Asynchronous Gaussian Multiple-Access Channels, IEEE Transactions on Information Technology
33.		K. Waheed and F. M. Salam. New Hyperbolic Source Density Models for Blind Source Recovery Score Functions. IEEE International Symposium on Circuits and Systems, Bangkok, Thailand, vol. 3, pp. 32-35, 2003.
34.		X. Wang et al., Blind Equalization and Multiuser Detection in Dispersive CDMA Channels, IEEE Transactions on Communications, vol. 46, no. 1, pp. 91103, January 1998.
35.		L. Zhang et al., Blind Deconvolution/Equalization Using State-Space Models" in Neural Networks for Signal Processing (NNSP '98), Cambridge, UK, Aug 31 - Sept. 2, 1998, pp. 123-131.
36.		Website URL: http://www.cdg.org/index.asp
37.		Written Opinion of the International Searching Authority, PCT/US2005/010867.

Examiner:	Date Considered:
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EXAMINER: Please initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM HDP-1449 (Based on Form PTO-1449)

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Sheet 5 of 5

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Salem et al.	
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Ref. Desig.	Examiner's Initials	
38.		International Search Report, PCT/US2005/010867, October 19, 2005

Examiner:

Date Considered:

EXAMINER: Please initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.